Acceleration Notes Review

Name: _____ Date: _____

Table: _____ Section: _____

1) What are the three ways that an object can accelerate?

2) Describe how a baseball player accelerates as he runs around the bases after hitting a home run.

3) What is the formula used to calculate the acceleration of an object moving in a straight line?

4) A cyclist's speed changes from 0 m/s to 15 m/s in 10 seconds. What is the cyclist's average acceleration?

5) How is an object moving if a slanted, straight line on a speed - versus - time graph represents its motion?

Performance Task:

When an object speeds up or slows down, it is easy to understand that it has accelerated. But when an object moves at a constant speed and changes direction, it is harder to understand why this is also called an acceleration. Look at the figure below. Suppose an object is moving in a circle at a constant speed of 2.0 cm/s. When the object is at point A, it is moving to the right and if it continued to go in a straight line, it would move to point B. Instead, it moves along the circle to point C.

Examine the figure and answer the following questions on a separate sheet of paper.

1. Measure the distance in centimeters from point A to point B. How far is it?

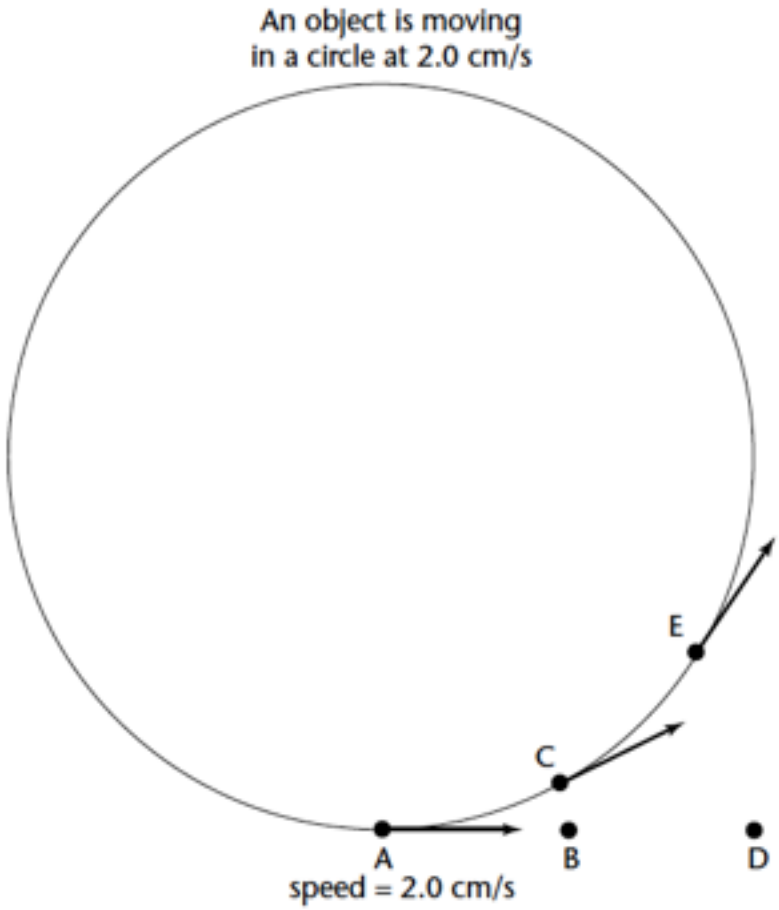
2. Measure the distance along the circle in centimeters from point A to point C. How far is it?

3. How far is the object from where it would have been if it had not been accelerated? (How far is it from B to C?)

4. Suppose the object at point A were moving at 4.0 cm/s. If it were not accelerated, where would it be after 1.0 second?

5. If the object moved along the circle at 4.0 cm/s where would it be after 1.0 second?

6. Measure the distance in centimeters between the two points you identified in Questions 4 and 5. How does this compare to the distance you measured in Question 3?



7. Suppose the circle has a circumference of 25.1 cm. Compare where the object would have been if it had gone in a straight line at 4.0 cm/s for 6.28 s (no acceleration) to where it is after it has gone around the circle for 6.28 s at 4.0 cm/s.